



integration with integrity

3308310 User's Manual

3.5 Embedded Controller

Version 1.0



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Safety Instructions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

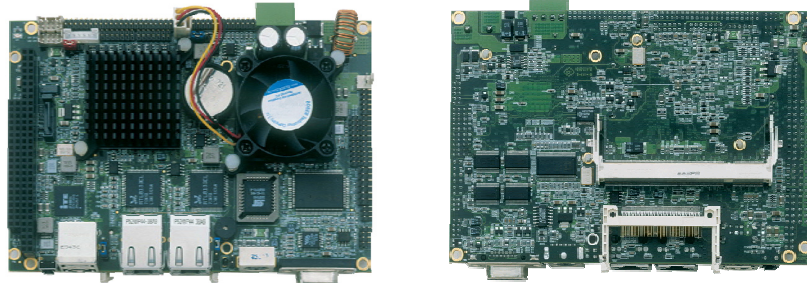
- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components. Fasten the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please wear and connect the strap before handle the 3308310 to ensure harmlessly discharge any static electricity through the strap.
- Please use an anti-static pad when putting down any components or parts or tools outside the computer. You may also use an anti-static bag instead of the pad. Please inquire from your local supplier for additional assistance in finding the necessary anti-static gadgets.

NOTE: *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTIONS.*



Chapter 1

General Description



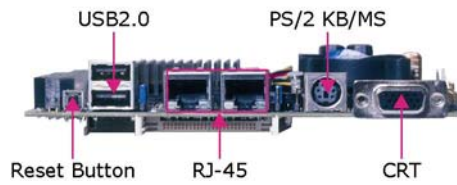
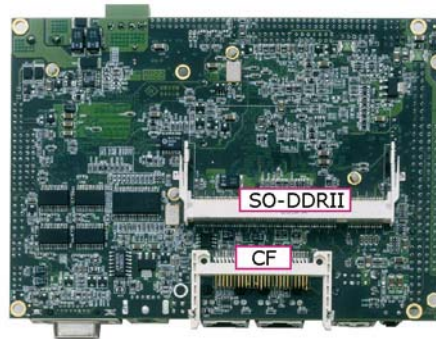
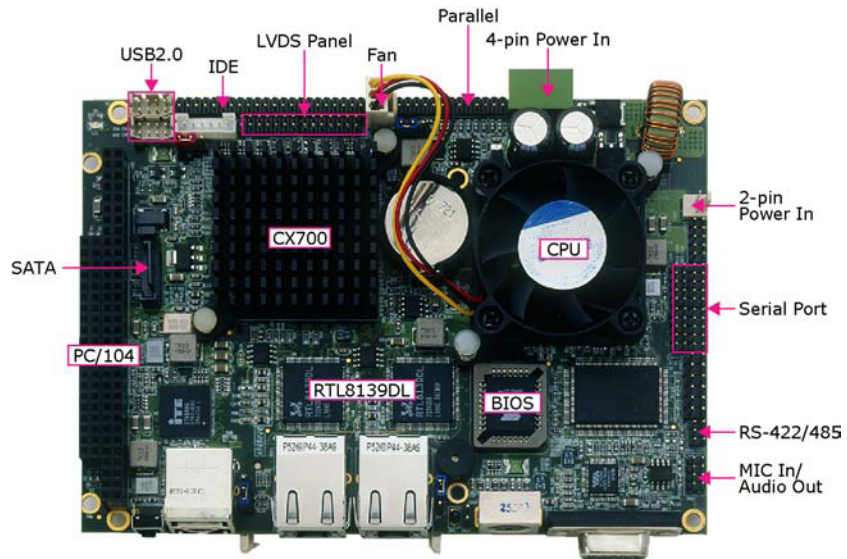
The 3308310 is a VIA CX700(M) chipset-based board designed. The 3308310 is an ideal all-in-one embedded engine board. Additional features include an enhanced I/O with CF, 8-bit I/O, CRT/LVDS, TV-Out, dual LAN, audio, SATA, 4 COM, 6 USB2.0, and PC/104 interfaces.

Its onboard ATA/33/66/100 to IDE drive interface architecture allows the 3308310 to support data transfers of 33 or 66MB/sec. to one IDE drive connection. Designed with the VIA CX700(M), the board supports VIA C7/VIA Eden/VIA Eden ULV 400MHz~1.6GHz CPU.

The VIA CX700(M) with 32/64/128MB shared main memory supports CRT/Panel displays up to 1920 x 1440. It also supports 24-bit single channel/48-bit dual channel LVDS interface supporting up to 1600 x 1200. System memory is also sufficient with the one SO-DDR II socket that can support up to 1G.

Additional onboard connectors include 6 USB2.0 ports providing faster data transmission. And two RJ-45 connectors for 10/100 Based Ethernet uses. To ensure the reliability in an unmanned or standalone system, the watchdog timer (WDT) onboard 3308310 is designed with software that does not need the arithmetical functions of a real-time clock chip. If any program causes unexpected halts to the system, the onboard WDT will automatically reset the CPU or generate an interrupt to resolve such condition.

1.1 Major Features



The 3308310 comes with the following features:

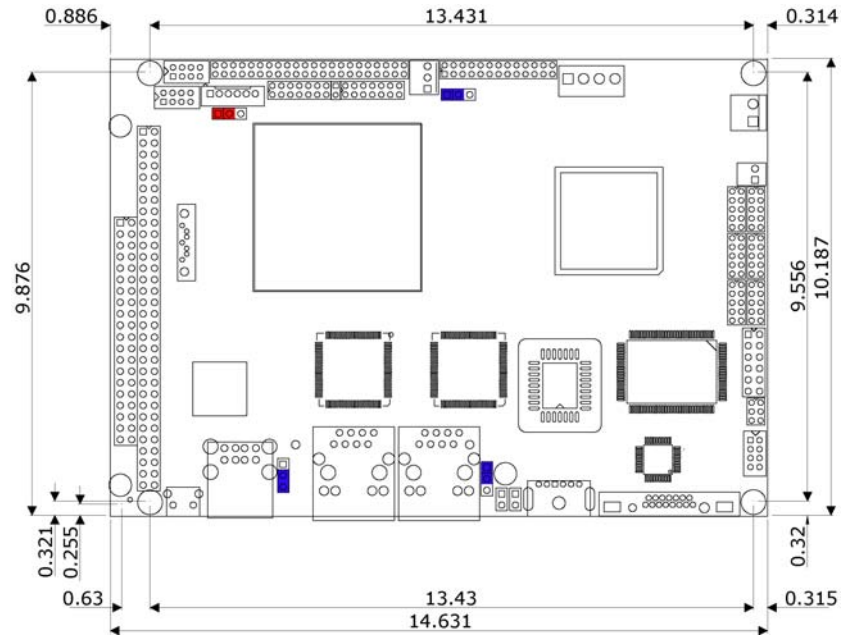
- VIA C7/VIA Eden/VIA Eden ULV processor 400MHz~1.6GHz
- One SO-DDRII socket with a max. capacity of 1GB
- VIA CX700(M) system chipset
- Winbond W83697UG super I/O chipset
- VIA CX700(M) graphics controller
- 24-bit/48-bit LVDS Panel display interface
- Dual RealTek RTL8139DL Ethernet controller
- VIA VT1708A HD audio controller
- VIA CX700(M) Serial ATA controller
- Fast PCI ATA/33/66/100 IDE controller
- CF, 8-bit I/O, 4 COM, 6 USB2.0. PC/104
- +10~+30V wide range single DC power in or Single +5V power in
- TV-Out, Hardware Monitor function
- Provides DVI function (optional)

1.2 Specifications

- **CPU:**
VIA Eden 400MHz/500MHz/600MHz/800MHz/1.0GHz/1.2GHz
VIA Eden ULV 500MHz/1.0GHz/1.5GHz
VIA C7 1.0GHz/1.5GHz/1.6GHz
- **Front Side Bus:** 400MHz FSB
- **Memory:** One SO-DDRII socket supports up to 1GB
- **Chipset:** VIA CX700(M)
- **I/O Chipset:** Winbond W83697UG
- **CompactFlash:** One, Type I/II IDE interface adapter
- **8-bit I/O:** 8-bit input/output port (parallel)
- **VGA:** VIA CX700(M) with 32/64/128MB shared main memory supports CRT display up to 1920 x 1440
- **LVDS Panel:** Supports 24-bit single channel/48-bit dual channel LVDS interface up to 1600 x 1200.
- **DVI:** An optional cable use for DVI function
- **TV-Out:** Provides PAL or NTSC TV systems
- **Ethernet:** Dual RealTek RTL8139DL 10/100 Based LAN
- **Audio:** VIA VT1708A HD audio controller
- **Serial ATA:** VIA CX700(M) controller with 1 port
- **IDE:** One 2.0-pitch 44-pin IDE connector
- **Parallel:** One enhanced bi-direction parallel port supports SPP/ECP/EPP
- **Serial Port:** 16C550 UART-compatible RS-232/422/485 x 1 and RS-232 x 3 serial ports with 16-byte FIFO

- **PC/104:** PC/104 Bus connector for ISA Bus
- **USB:** 6 USB2.0 ports, internal x 4 and external x 2
- **Keyboard/Mouse:** PS/2 6-pin Mini DIN
- **BIOS:** AMI PnP Flash BIOS
- **Watchdog Timer:** Software programmable time-out intervals from 1~255 sec.
- **CMOS:** Battery backup
- **Power In:** +10~+30V wide range single DC power in or Single +5V power in (PCB ver:0.4 above)
- **Temperature:** 0~+60 °C (operating)
- **Hardware Monitor:** Winbond W83L784R
- **Board Size:** 14.5(L) x 10.2(W) cm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

The 3308310 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

2.2 Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Examine all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip to ensure that they are firmly seated. The 3308310 delivery package contains the following items:

- 3308310 Board x 1
- Utility CD Disk x 1
- Cables Package x 1
- Jumper Bag x 1
- User's Manual



Cables Package		
NO.	Description	QTY.
1	8-pin(2.0-pitch) phone jack x 2	1
2	4-pin to 4-pin terminal block power cable	1
3	40-pin to 44-pin IDE flat cable	1
4	COM (2.0-pitch)	2
5	1-to-2 Mini DIN cable	1
6	Printer cable	1
7	SATA device cable	1

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the return shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately.

Option Accessories	
NO.	Description
1	SATA power cable
2	1-to-2 USB cable with bracket
3	COM (2.0-pitch)

Chapter 3

Hardware Installation

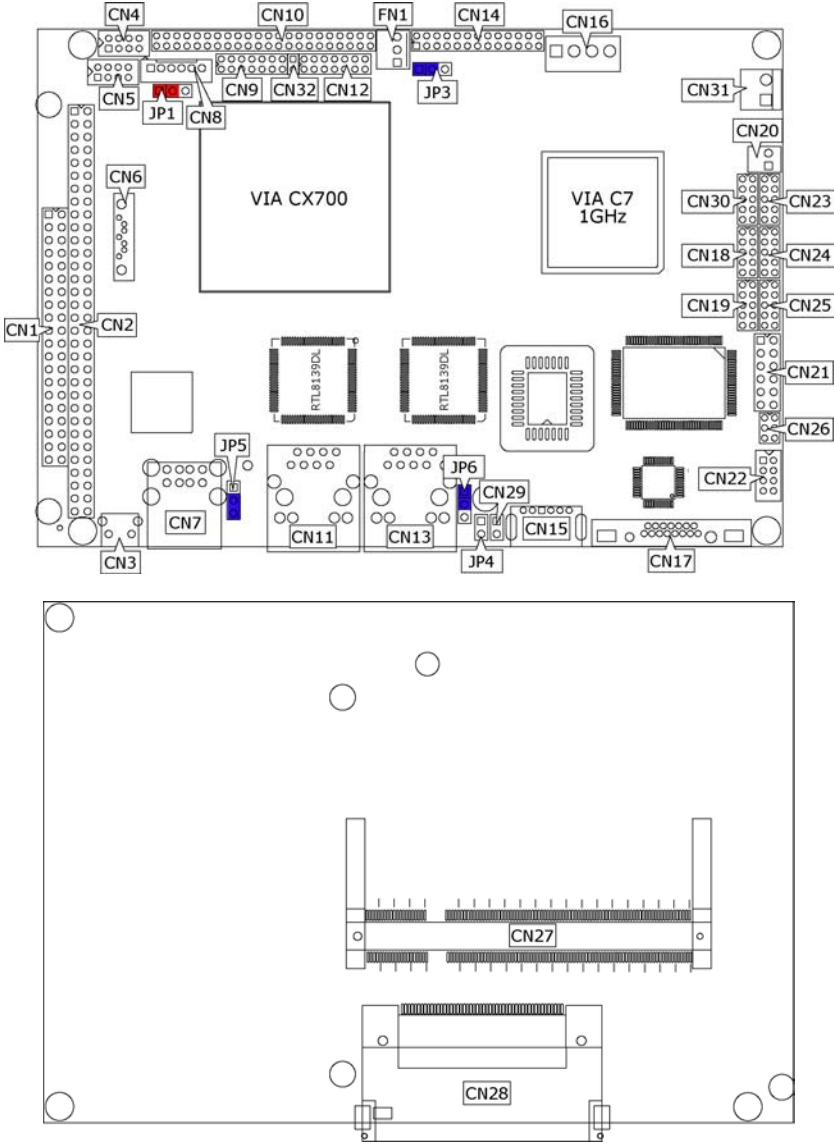
This chapter provides the information on how to install the hardware using the 3308310. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

3.1 Before Installation

After confirming your package contents, you are now ready to install your hardware. The following are important reminders and steps to take before you begin with your installation process.

1. Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper. (JP3 short 1-2)
2. Go through the connections of all external devices and make sure that they are installed properly and configured correctly within the CMOS setup. Refer to the sections on this chapter for the detailed information on the connectors.
3. Keep the manual and diskette in good condition for future reference and use.

3.2 Board Layout



3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP1	Panel Voltage Select: +3.3V	Short 1-2	10
JP3	Clear CMOS: <i>Normal Operation</i>	Short 1-2	16
JP5	CF Use Master/Slave Select: <i>Slave</i>	Short 2-3	23
JP6	Display Out Function Select: <i>CRT</i>	Short 1-2	20
CN23	COM4 Use RS-232 or RS-422/485 Select: <i>RS-232</i>	Open	14

3.4 Connector List

Connector	Definition	Page
CN1/CN2	PC/104 Bus 40-pin/64-pin Connector	20
CN3	Reset Button	16
CN4/CN5/CN7	USB2.0 Port	15
CN6	Serial ATA Connector	12
CN8	Inverter Power In Connector	10
CN9/CN12	LVDS Panel Connector	10
CN10	IDE Connector	12
CN11/CN13	RJ-45 Connector	15
CN14	Parallel Port	13
CN15	PS/2 6-pin Mini DIN	17
CN16	4-pin Power In Connector	16
CN17	15-pin CRT Connector	10
CN24/CN18/CN19/CN25	COM 1~COM 4 Connector (5x2 header)	14
CN20	2-pin ATX Power In Connector	16
CN21	System Front Panel Control	17
CN22	MIC In/Line Out Connector	23
CN26	RS-422/485 Connector	14
CN27	SO-DDR2 Socket	10
CN28	CompactFlash Connector	23
CN29	TV-Out Connector	20
CN30	8-bit Input/Output	25
CN31	2-pin Power In Connector	16
CN32	DVI SM Bus	10
FN1	Fan Power In Connector	16

3.5 Configuring the CPU

The 3308310 embedded with VIA Eden 400MHz/500MHz/600MHz/800MHz/1.0GHz/1.2GHz, VIA Eden ULV 500MHz/1.0GHz/1.5GHz, VIA C7 1.0GHz/1.5GHz/1.6GHz. User don't need to adjust the frequently and check speed of CPU.

3.6 System Memory

The 3308310 provides one SO-DDRII socket at locations CN27. The maximum capacity of the onboard memory is 1GB.

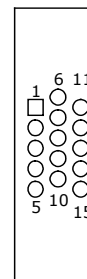
3.7 VGA Controller

The 3308310 provides two connection methods of a VGA device. CN17 offers an internal 15-pin CRT connector and CN9/CN12 are the LVDS interface connectors onboard reserved for flat panel installation.

The 3308310 also provides DVI function. There is an optional cable for this function use (CN9 + CN32).

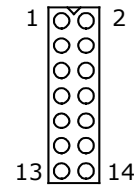
- **CN17: 15-pin CRT Connector**

PIN	Description	PIN	Description
1	Red	2	Green
3	Blue	4	N/C
5	GND	6	GND
7	GND	8	GND
9	N/C	10	GND
11	N/C	12	SDA
13	HSYNC	14	VSYNC
15	SDC		



- **CN9/CN12: LVDS Interface Connector**

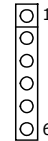
PIN	Description	PIN	Description
1	V _{LCD}	2	V _{LCD}
3	GND	4	GND
5	A0-/B0-	6	A0+/B0+
7	A1-/B1-	8	A1+/B1+
9	A2-/B2-	10	A2+/B2+
11	CLK1-/CLK2-	12	CLK1+/CLK2+
13	A3-/B3-	14	A3+/B3+



NOTE: LVDS cable should be produced very carefully. A0- & A0+ have to be fabricated in twister pair (A1- & A1+, A2- & A2+ and so on) otherwise the signal won't be stable. Please set the proper voltage of your panel using JP1 before proceeding on installing it.

- **CN8: Inverter Power In Connector**

PIN	Description
1	N/C
2	N/C
3	VCC
4	BK_EN
5	ENVDD
6	GND



NOTE: If use CN9 only, it just supports 24-bit single channel LVDS panel; If you want to use 48-bit dual channel LVDS panel, please use CN9 and CN12 combined.

The 3308310 has an onboard jumper that selects the working voltage of the flat panel connected to the system. Jumper JP1 offers two voltage settings for the user.

- **JP1: Panel Voltage Select**

Options	Settings
+3.3V (default)	Short 1-2
+5V	Short 2-3

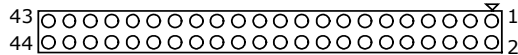


3.8 IDE Drive Connector

CN10 is a 2.0-pitch 44-pin connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the 3308310. A maximum of two ATA/33/66/100 IDE drives can be connected to the 3308310 via CN10.

- **CN10: IDE Connector**

PIN	Description	PIN	Description
1	Reset	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	N/C
21	PDREQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	PIORDY	28	PR1PD1-
29	RPDACK-	30	GND
31	Interrupt	32	N/C
33	RPDA1-	34	PATA66
35	RPDA0-	36	RPDA2-
37	RPCS1-	38	RPCS3-
39	HDD Active	40	GND
41	VCC	42	VCC
43	GND	44	N/C

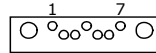


3.9 Serial ATA Connector

You can connect the Serial ATA device that provides you high speeds transfer rates (150MB/sec.). If you wish to use RAID function, please note that these two serial ATA connectors just support RAID0 and only compatible with WIN XP.

- **CN6: Serial ATA Connector**

PIN	Description
1	GND
2	SATATXP
3	SATATXN
4	GND
5	SATARXN
6	SATARXP
7	GND

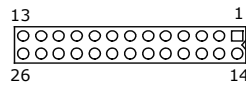


3.10 Parallel Connector

CN14 is a standard 26-pin flat cable connector designed to accommodate onboard parallel port connection.

- **CN14: Parallel Connector**

PIN	Description	PIN	Description
1	Strobe	14	Auto From Feed
2	DATA0	15	ERROR#
3	DATA1	16	Initialize
4	DATA2	17	Printer Select LN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	Acknowledge	23	GND
11	Busy	24	GND
12	Paper Empty	25	GND
13	Printer Select	26	GND



3.11 Serial Port Connectors

The 3308310 offers NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports and four internal 10-pin headers and one RS-422/485 connector.

- **CN24/CN18/CN19/CN25: COM 1 ~ COM 4 Connector (5x2 Header)**

PIN	Description	PIN	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	N/C



- **CN26: RS-422/485 Connector (3x2 Header, COM 4)**

PIN	Description	PIN	Description
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	N/C



NOTE: The terminal resistance of RX & TX is set at 180 Ω.

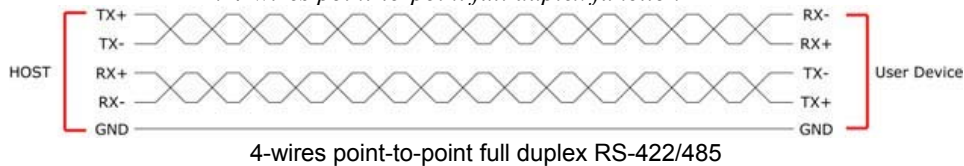
- **CN23: COM 4 use RS-232 or RS-422/485 Select**

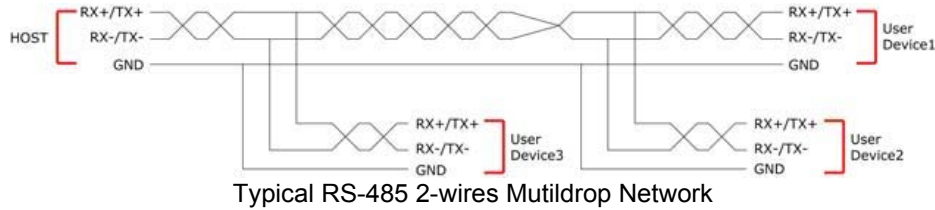
Options	Settings
RS-232 (default)	Open
RS-485 by Auto (*1)	Short 1-2, 3-4, 5-7, 8-10
RS-485 by -RTS (*-1)	Short 1-2, 3-4, 7-9, 8-10
RS-422/485 Full Duplex (*2)	Short 1-2, 3-4, 6-8



NOTE: *1: 2-wires RS-485 function

*2: 4-wires point-to-point full duplex function





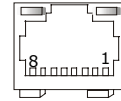
3.12 Ethernet Connector

The 3308310 provides two RJ-45 connectors for 10/100 Based LAN. Please refer to the following for its pin information.

When installs OS, this driver namely can automatically install. User does not need to renewal.

- **CN11/CN13: RJ-45 Connector**

PIN	Description	PIN	Description
1	TCT	10	TX+
2	TX-	11	RX+
3	RX-	12	N/C
4	N/C	13	N/C
5	N/C	14	RCT
6	Link LED	15	330Ω pull VCC3
7	ACT LED	16	330Ω pull VCC3
8	SHIELD	17	SHIELD
9	SHIELD	18	SHIELD



3.13 USB Port

The 3308310 provides three connectors, at location CN4/CN5/CN7, for six USB2.0 ports.

- **CN4/CN5: Internal USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBD0- USBD2-	4	USBD1- USBD3-
5	USBD0+ USBD2+	6	USBD1+ USBD3+
7	GND	8	GND



- **CN7: External USB2.0 Port**

PIN	Description
1	VCC
2	BD4-
3	BD4+
4	GND



3.14 CMOS Data Clear

The 3308310 has a Clear CMOS jumper on *JP3*.

- **JP3: Clear CMOS**

Options	Settings
Normal Operation (default)	Short 1-2
Clear CMOS	Short 2-3



IMPORTANT: Before you turn on the power of your system, please set *JP3* to Short 1-2 for normal operation.

3.15 Power and Fan Connectors

3308310 provides one 4-pin power in at *CN16*. Connector *FN1* onboard 3308310 is a 3-pin fan power connector.

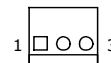
- **CN20: 2-pin Power In Connector**

PIN	Description
1	PS_ON
2	5VSB



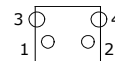
- **FN1: Fan Power In Connector**

PIN	Description
1	GND
2	VCC
3	Fan In



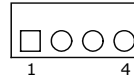
- **CN3: External Reset Button**

PIN	Description
1	GND
2	Reset Switch
3	GND
4	GND



- **CN16: 4-pin Power In Connector**

PIN	Description
1	DC In
2	GND
3	GND
4	DC In

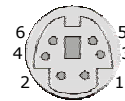


3.16 Keyboard/Mouse Connectors

The CN15 is a PS/2 6-pin Mini DIN connector for 3308310.

- **CN15: PS/2 6-pin Mini DIN Keyboard/Mouse Connector**

PIN	Description
1	Keyboard Data
2	Mouse Data
3	GND
4	+5V
5	Keyboard Clock
6	Mouse Clock



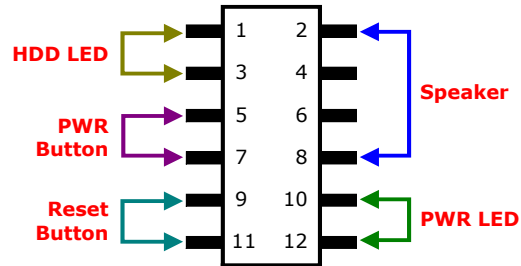
3.17 System Front Panel Control

The 3308310 has front panel control at location CN21 that indicates the power-on status.

- **CN21: System Front Panel Control**

PIN	Description	PIN	Description
1	330Ω pull VCC	2	Speaker
3	HDD LED	4	N/C
5	PWR Button	6	GND
7	GND	8	330Ω pull VCC
9	Reset Switch	10	330Ω pull 3.3V
11	GND	12	GND

Connector CN21 Orientation



3.18 Watchdog Timer

Once the Enable cycle is active a Refresh cycle is requested before the time-out period. This restarts counting of the WDT period. When the time counting goes over the period preset of WDT, it will assume that the program operation is abnormal. A reset system signal will restart when such error happens.

The following sample programs show how to enable, disable and refresh the watchdog timer:

```
.286

.MODEL SMALL
.DATA
;this is data area

port equ 04Eh ;W83697H Chipset port
datao equ 04Fh ;data port

.CODE

print macro buff
mov dx,offset buff;
mov ah,09h
int 21h
endm

begin proc near
mov ax,@data
mov ds,ax
STI
; W83697H
mov dx,port ; Unlock register
mov al,087H ;
out dx,al
jmp $+2
out dx,al
mov dx,port ;
```



```

mov     al,07H    ;
out     dx,al
jmp     $+2
mov     dx,data0 ; set device 8
mov     al,08H    ;
out     dx,al
jmp     $+2

mov     dx,port   ; Watchdog IO function
mov     al,030H   ; register
out     dx,al
jmp     $+2

mov     dx,data0 ; set 01h to activate
mov     al,01H    ;
out     dx,al
jmp     $+2

mov     dx,port   ; set CRF3
mov     al,0f3H   ;
out     dx,al
jmp     $+2

mov     dx,data0 ; set CRF3 to second
mov     al,00H    ;
out     dx,al
jmp     $+2

mov     dx,port   ; set CRF4 time
mov     al,0f4H   ;
out     dx,al
jmp     $+2

mov     dx,data0 ; set CRF4 time to 5 s'
mov     al,05H    ;
out     dx,al

print   x1
print   copyright
print   x2
mov     ah,4ch    ;go back to dos
int     21h
.stack
begin   endp
        end begin

```

User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H=2sec....FFH=255sec.

3.19 TV-Out Function

The 3308310 can support TV-out function whose input could be up to 800 x 600 graphics resolutions. World Wide Video standards are supported including NTSC-M (North America, Taiwan), NTSC-J (Japan), PAL-b, D, G, H, I (Europe, Asia), PAL-M (Brazil), PAL-N (Uruguay, Paraguay) and PAL-NC (Argentina).

- **CN29: TV-Out Connector**

PIN	Description
1	CVBS
2	GND



- **JP6: Display Out Function Select**

Options	Settings
TV-Out	Short 2-3
CRT (default)	Short 1-2



3.20 PC/104 Connectors

The PC/104 expansion bus offers provisions to connect all types of PC/104 modules. With the PC/104 bus being known as the new generation of industrial embedded 16-bit PC standard bus, thousands of PC/104 modules from multiple vendors can be easily installed onboard. The detailed pin assignment of the PC/104 expansion bus connectors CN2 and CN1 are listed on the following tables:

NOTE1: *The PC/104 connector allows direct plugging or stack-through piling of PC/104 modules without requiring the PC/104 mounting kit.*

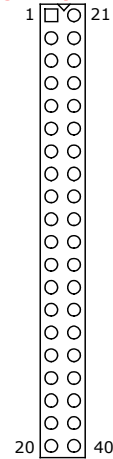
NOTE2: *PC/104 Bus connector only for 16-bit ISA Bus, DO NOT support DMA mode.*

NOTE3: *There is a special fanless heatsink for 3308310 to integrate the PC/104 module, need more information, please contact with your sales.*

● **CN1: PC/104 40-pin Connector**

PIN	Description	PIN	Description
1	GND	21	GND
2	-MEMCS16	22	-SBHE
3	-IOSC16	23	SA23
4	IRQ10	24	SA22
5	IRQ11	25	SA21
6	IRQ12	26	SA20
7	IRQ15	27	SA19
8	IRQ14	28	SA18
9	-DACK0	29	SA17
10	DRQ0	30	-MEMR
11	-DACK5	31	-MEMW
12	DRQ5	32	SD8
13	-DACK6	33	SD9
14	DRQ6	34	SD10
15	-DACK7	35	SD11
16	DRQ7	36	SD12
17	+5V	37	SD13
18	-MASTER	38	SD14
19	GND	39	SD15
20	GND	40	N/C

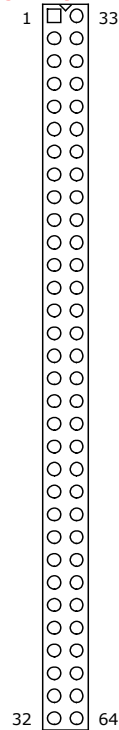
Connector diagram rotated 90 degrees clockwise from original position



● **CN2: PC/104 64-pin Connector**

PIN	Description	PIN	Description
1	-IOCHECK	33	GND
2	SD7	34	RESETDRV
3	SD6	35	+5V
4	SD5	36	IRQ9
5	SD4	37	N/C
6	SD3	38	DRQ2
7	SD2	39	-12V
8	SD1	40	N/C
9	SD0	41	+12V
10	IOCHRDY	42	GND
11	AEN	43	-SMEMW
12	SA19	44	-SMEMR
13	SA18	45	-IOW
14	SA17	46	-IOR
15	SA16	47	-DACK3
16	SA15	48	DRQ3
17	SA14	49	-DACK1
18	SA13	50	DRQ1
19	SA12	51	-REFRESH
20	SA11	52	SYSCLK
21	SA10	53	IRQ7
22	SA9	54	IRQ6
23	SA8	55	IRQ5
24	SA7	56	IRQ4
25	SA6	57	IRQ3
26	SA5	58	-DACK2
27	SA4	59	TC
28	SA3	60	BALE
29	SA2	61	+5V
30	SA1	62	OSC
31	SA0	63	N/C
32	GND	64	GND

Connector diagram rotated 90 degrees clockwise from original position




3.21 Audio Connectors

The 3308310 has an onboard VIA VT1708A High Definition Audio CODEC. The following tables list the pin assignments of the Line In/Audio Out connector.

- 4 stereo DACs support 24-bit, 192KHz samples
 - DAC with 100dB S/N Ratio
 - 2 stereo ADCs support 24-bit, 192KHz samples
 - ADC with 95dB S/N ratio
 - 8-channels of DAC support 16/20/24-bit PCM format for 7.1 audio solution
- **CN22: MIC In/Line Out Connector**

PIN	Description	PIN	Description
1	AOUTL	2	AOUTR
3	GND	4	GND
5	MIC IN L	6	LINE R
7	GND	8	LINE L




3.22 CompactFlash™ Connector

The 3308310 also offers a Type I/II CompactFlash™ connector is IDE interface located at the solder side of the board. The designated CN28 connector, once soldered with an adapter, can hold CompactFlash™ cards of various sizes. Please turn off the power before inserting the CF card.

Inserting a CompactFlash™ card into the adapter is not a difficult task. The socket and card are both keyed and there is only one direction for the card to be completely inserted. Refer to the diagram on the following page for the traditional way of inserting the card.

- **JP5: CF Use Master/Slave Select**

Options	Setting
Master	Short 1-2
Slave (default)	Short 2-3



- **CN28: CompactFlash™ Connector**

PIN	Description	PIN	Description
1	GND	2	DATA3
3	DATA4	4	DATA5
5	DATA6	6	DATA7
7	SDCS1#	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC	14	GND
15	GND	16	GND
17	GND	18	SDA2
19	SDA1	20	SDA0
21	DATA0	22	DATA1
23	DATA2	24	470Ω pull GND
25	N/C	26	N/C
27	DATA11	28	DATA12
29	DATA13	30	DATA14
31	DATA15	32	SDCS3#
33	N/C	34	UOR
35	IOW	36	EWE0
37	IRQ	38	VCC
39	CS	40	N/C
41	RESET	42	IORDY
43	DACK	44	REQ
45	IDE LED	46	PDIAG
47	DATA8	48	DATA9
49	DATA10	50	GND

NOTE: When use CF card, IDE device function will be disabled.

3.23 8-bit I/O Function

The 3308310 offers one 8-bit input/output port by parallel port.

- **CN30: 8-bit Input/Output**

PIN	Description	PIN	Description
1	VCC	2	GND
3	GD0	4	GD4
5	GD1	6	GD5
7	GD2	8	GD6
9	GD3	10	GD7



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```

.MODEL SMALL
.DATA
port equ 0378h ;this is data area
;print port can be change to 278h

.CODE

print macro buff
mov dx, offset buff;
mov ah,09h
int 21h
endm

delay :
push cx
mov cx,0155h

@@:
jmp $+2
push cx
mov cx,0ffffh

wait1: loop wait1
pop cx
loop @b
pop cx
ret

begin proc near
mov ax,@data
mov ds,ax

Mov dx, port
Mov al, 80h out dx, al

;;-----
;;ROR
mov cx, 08h
@@:
ror al, 1

```

```

        call    delay
        out    dx, al
        loop   @b
        pop    cx
;;ROL
        push   cx
        mov    cx, 08h
@@:
        rol    al, 1
        out    dx, al
        call   delay
        loop   @b
        pop    cx
;;-----
;;-----
;;ROR
        mov    cx, 08h
@@:
        ror    al, 1
        call   delay
        out    dx, al
        loop   @b
        pop    cx
;;ROL
        push   cx
        mov    cx, 08h
@@:
        rol    al, 1
        out    dx, al
        call   delay
        loop   @b
        pop    cx
;;-----
;;-----
;;ROR
        mov    cx, 08h
@@:
        ror    al, 1
        call   delay
        out    dx, al
        loop   @b
        pop    cx
;;ROL
        push   cx
        mov    cx, 08h
@@:
        rol    al, 1
        out    dx, al
        call   delay
        loop   @b
        pop    cx
;;-----
;;-----
;;ROR
        mov    cx, 08h
@@:
        ror    al, 1
        call   delay

```



```

        out    dx, al
        loop  @b
        pop   cx
;;ROL
        push  cx
        mov   cx, 08h
@@:
        rol   al, 1
        out   dx, al
        call  delay
        loop  @b
        pop   cx
;;-----
;;-----
;;ROR
        mov   cx, 08h
@@:
        ror   al, 1
        call  delay
        out   dx, al
        loop  @b
        pop   cx
;;ROL
        push  cx
        mov   cx, 08h
@@:
        rol   al, 1
        out   dx, al
        call  delay
        loop  @b
        pop   cx
;;-----
;;-----
;;ROR
        mov   cx, 08h
@@:
        ror   al, 1
        call  delay
        out   dx, al
        loop  @b
        pop   cx
;;ROL
        push  cx
        mov   cx, 08h
@@:
        rol   al, 1
        out   dx, al
        call  delay
        loop  @b
        pop   cx
;;-----
;;-----
;;ROR
        mov   cx, 08h
@@:
        ror   al, 1
        call  delay
        out   dx, al

```

```

        loop    @b
        pop    cx
;;ROL
        push   cx
        mov    cx, 08h
@@:
        rol    al, 1
        out    dx, al
        call   delay
        loop   @b
        pop    cx
;;-----
;flash LED 3 time
        mov    cx, 01h
@@:
        mov    al, 0ffh
        out    dx, al
        call   delay
        mov    al, 0h
        out    dx, al
        call   delay
        loop   @b
ee:
        mov    ah, 4ch
        int    21h
        .stack
        begin  endp
        end    begin
        ;go back to dos

```

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support your products, projects and business.



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